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Non Invasive Imaging

IS LEFT BUNDLE BRANCH BLOCK RELATED TO THE MECHANISM OF LEFT VENTRICULAR DYSSYNCHRONY?

Poster Contributions
Hall C
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Session Title: SPECT Imaging: Focus on Vasodilators, Interpretation and Newer Applications
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Background: Among patients who fulfill selection criteria for cardiac resynchronization therapy (CRT), those with a left bundle branch block (LBBB) are thought to derive the greatest benefit. While CRT is presumed to induce favorable left ventricular (LV) reverse remodeling by ameliorating left ventricular dyssynchrony (LVD), the relative contribution of LBBB to LVD remains unknown.

Methods: We identified 137 consecutive patients (106 men; mean age: 63+12) with an LV ejection fraction (LVEF) < 35%, who underwent a gated SPECT study between January 2008 and December 2011. LVD was determined by phase analysis (PA) of the gated SPECT using the SyncToolTM software (Syntermed, Inc., Atlanta, GA). LVD was defined as either the phase histogram bandwidth (HBW) or the phase standard deviation (PSD) >2 standard deviations above the mean normal published values.

Results: The mean LVEF of the cohort was 27+6% and LBBB was present in 33 patients (22%). LVD was present in 123 patients (90%). There were no differences in prevalence of LVD (91% vs. 90%, p=0.86) or its severity (PSD: 45+19 vs. 40+18, p=0.17; HBW: 138+69 vs. 132+72, p=0.67) among those with and without LBBB. Infarct size, as assessed by the summed rest score (SRS), LVEF and female gender were significant predictors of LVD in a multivariable logistic regression analysis (table). LBBB and QRS duration did not predict LVD.

Conclusions: Among patients with severe LV systolic dysfunction, the presence of LBBB does not predict LVD.

Predictor of Left Ventricular Dyssynchrony Among Patients with Severely Reduced Ejection Fraction

Variable	Odds Ratio	95% Confidence Interval	p-value
Age	1.02	0.94 – 1.10	0.62
Male gender	0.06	0.01 – 0.71	0.03
LBBB	2.94	0.32 – 27.3	0.34
Summed rest score	1.17	1.06 – 1.28	0.006
Ejection fraction	0.82	0.67 – 0.99	0.04
End-diastolic volume	1.02	0.99 – 1.04	0.07
QRS duration	0.98	0.95 – 1.01	0.28